LifeWatch ERIC
e-Science Infrastructure for Biodiversity and Ecosystem Research to support Agroecology

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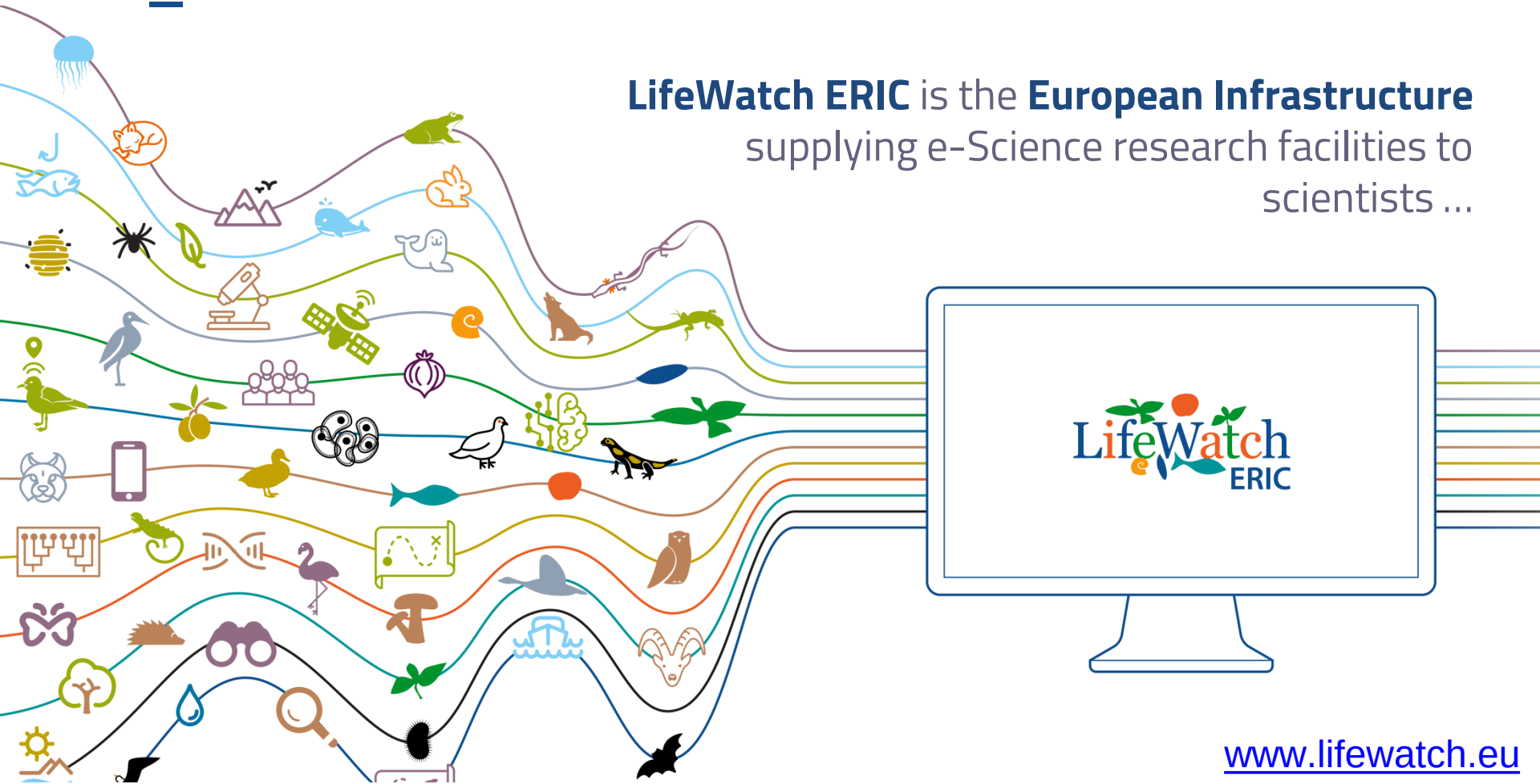
ALL-Ready – 1st Pilot Network Meeting
13th December 2021

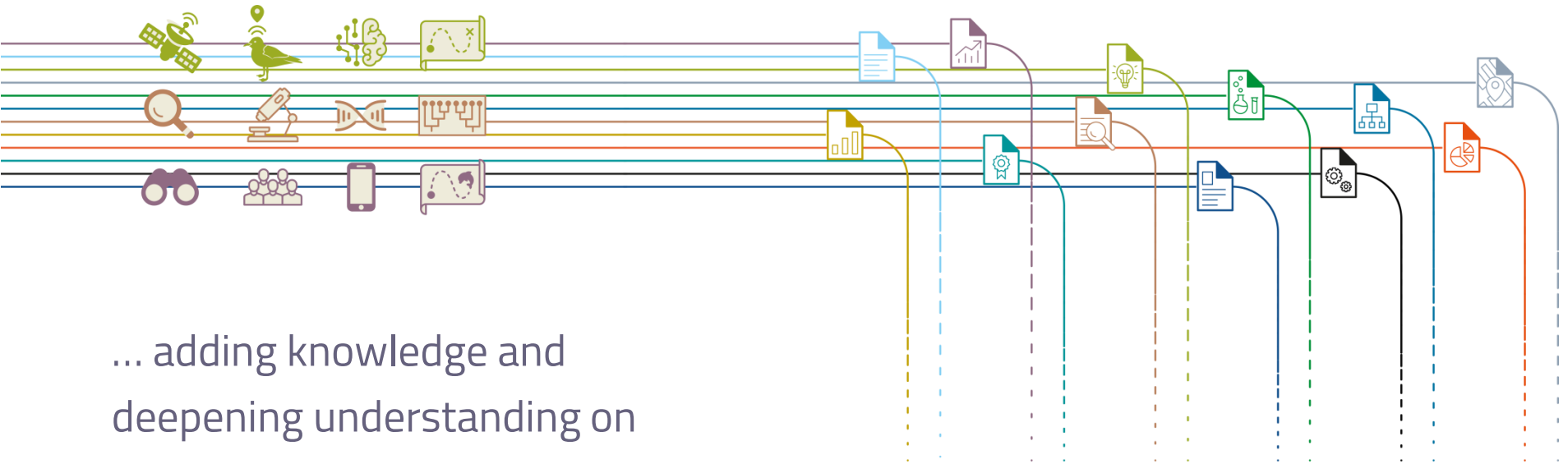
_Who we are



LifeWatch ERIC is the **European Infrastructure** supplying e-Science research facilities to scientists ...

www.lifewatch.eu

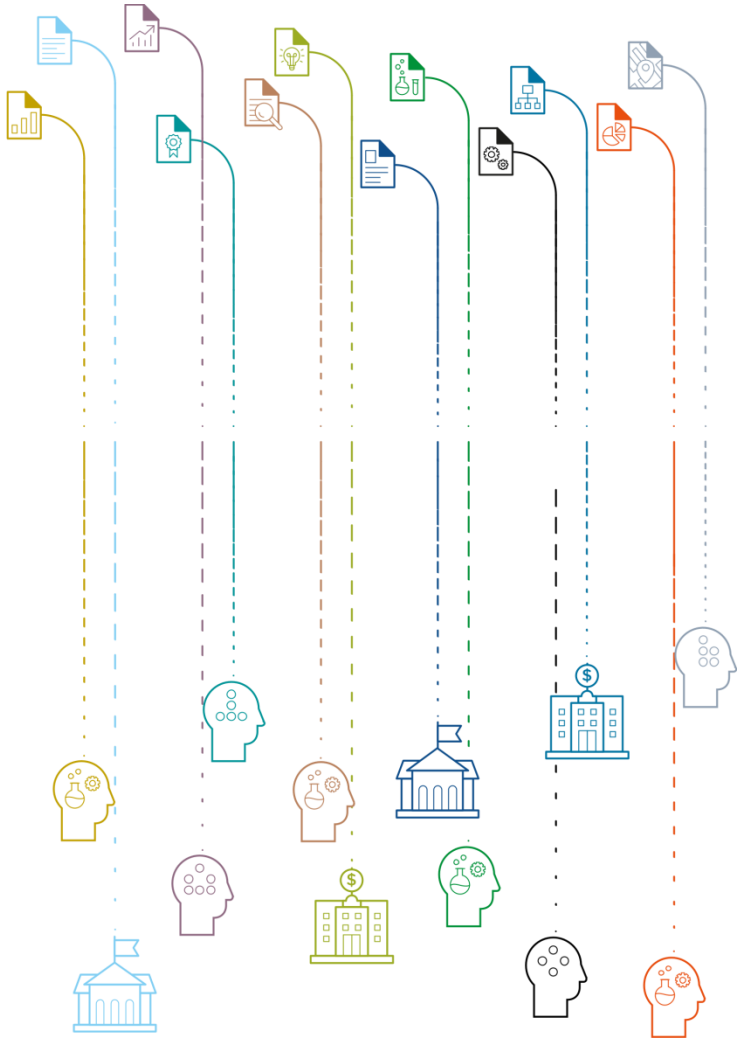
_Who we are



… adding knowledge and
deepening understanding on
Biodiversity organisation and **Ecosystem**
functions and services …

Who we are

… in **support** of our **societies** to address the **key planetary challenges**.



_Who we are

rastructure
facilities to
scientists ...

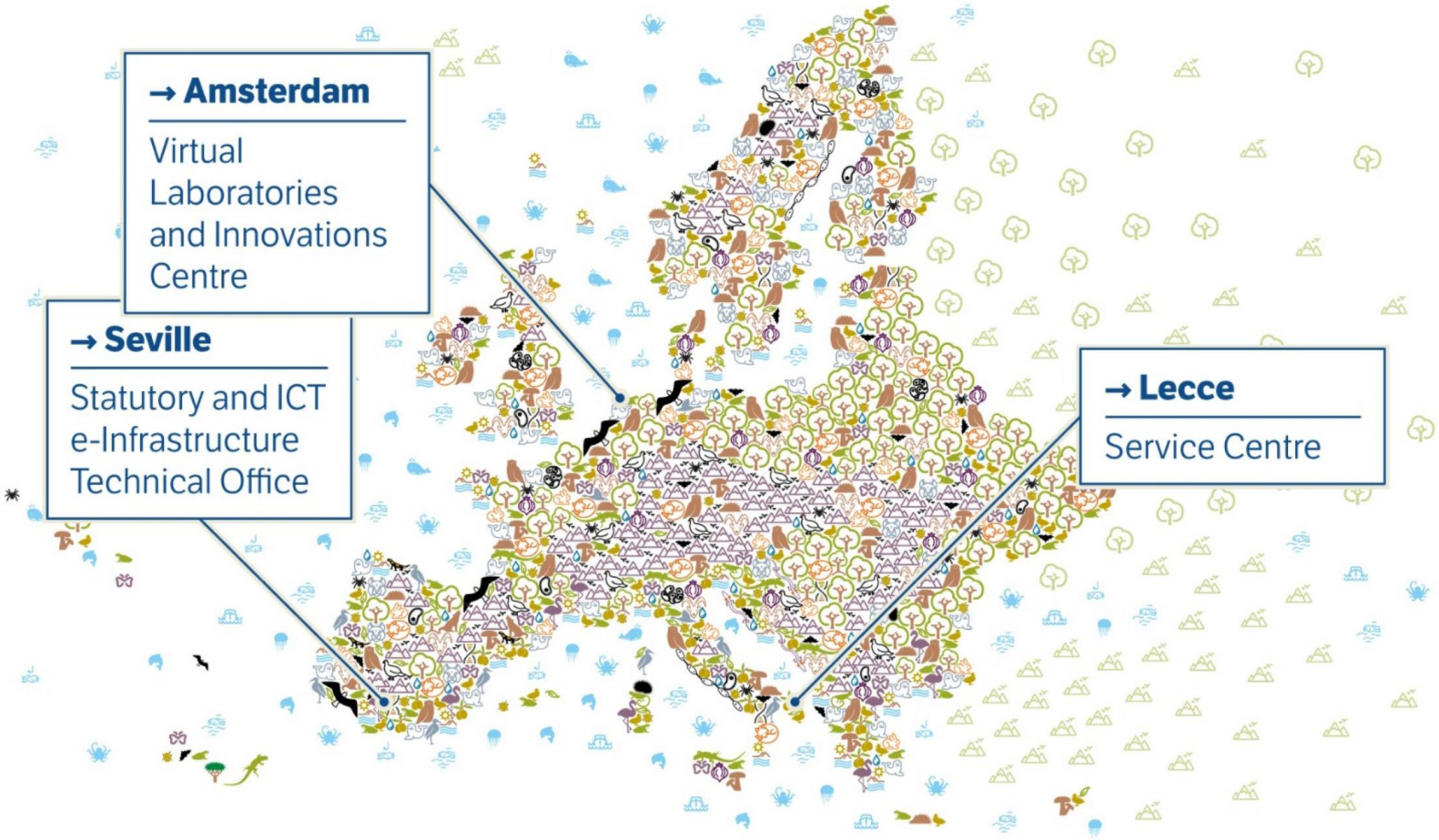
https://youtu.be/m4n-cAcgpl0

_Support Societies

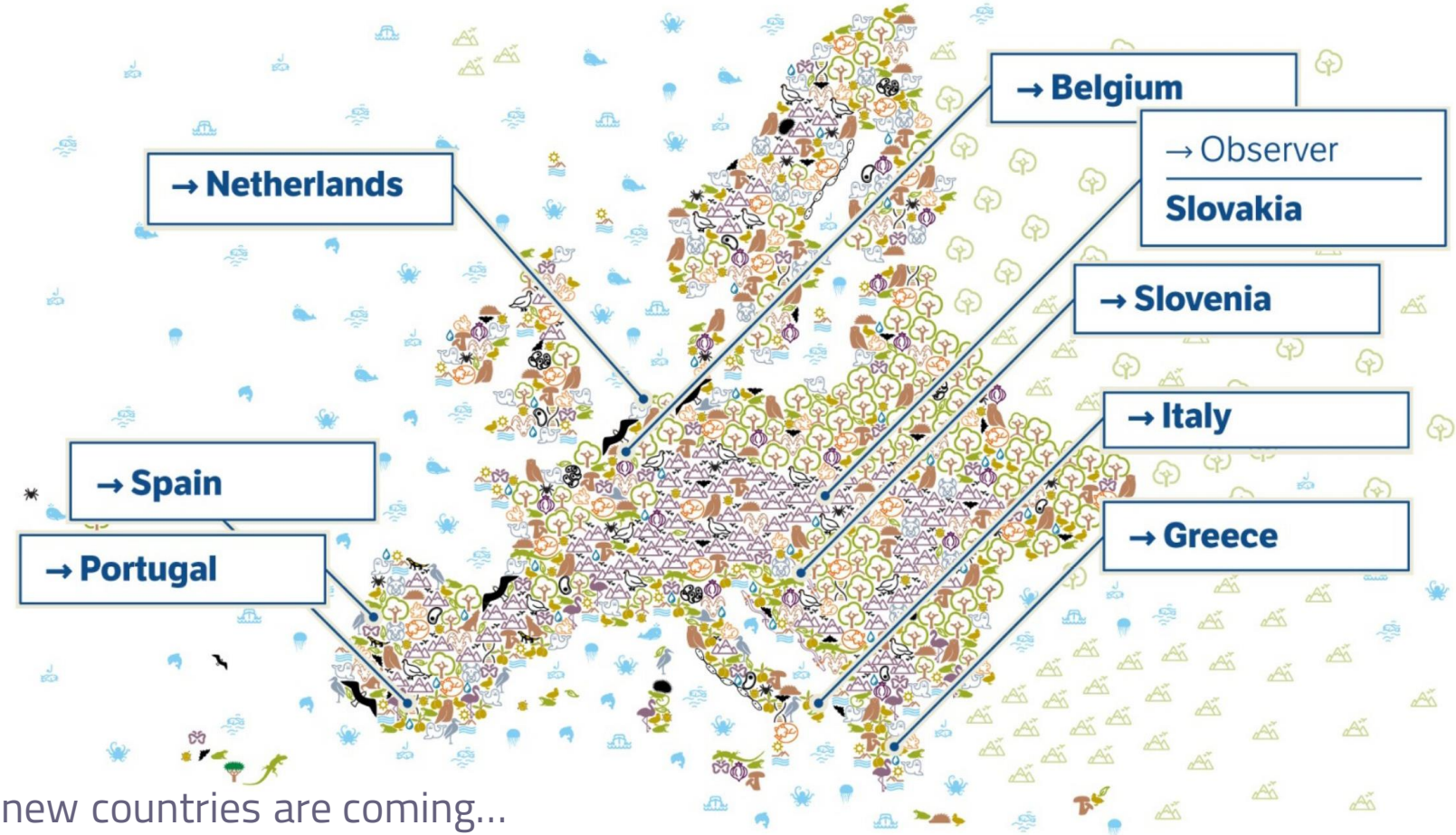
LifeWatch ERIC's goal is to be a worldwide provider of content and services for communities on Ecological Science by:

- Offering **new opportunities for large-scale scientific development**;
- Supporting **knowledge-based decision-making** for biodiversity and ecosystem management;
- Providing **training, dissemination and awareness** programmes.

_How we work | Common Facilities



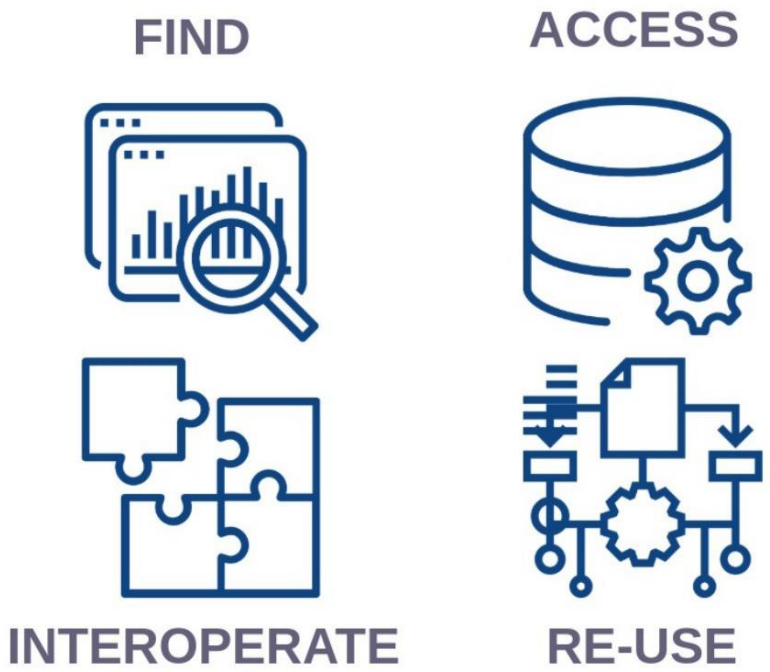
_How we work | National Nodes



And new countries are coming...

LifeWatch ERIC_ What we provide | FAIR DATA

- Find the data and metadata you are looking for, thanks to our **Catalogue of resources**;
- Freely access, use and share large datasets of different types and sources;
- Work with interoperable data, thanks to our standards, thesauri and ontologies;
- Reuse and combine data for different research questions, generating new services and meeting community standards.



_What we provide | VREs

A Virtual Research Environment or Virtual Lab is a web-based workspace providing seamless access **to all services a data-user needs** to do data-related work and collaborate with the community to create new knowledge.

A VRE facilitate working with data in a **more efficient way** and improve collaboration between different users (LLs, RIs, end-users, policy-makers, citizens, etc.). Usually includes:

- Data sources (own data, third-parties' data sources)
- Centralized access to data
- Data processing (development environment)
- Visualization of data
- Sharing of results with others
- Other e-services

The VRE can be used to answer scientific and managerial questions, in this case, applied to **agroecology**

What we provide | VREs Non Indigenous Invasive Species

- Boost the integration of tools & services into the LifeWatch ERIC web portal;
- Focus on a major scientific issue in biodiversity and ecosystem research with relevant socio-economic implications;
- Produce new and synthetic knowledge needed by institutions, administrations and managers to give solutions to major environmental problems at different scales;

LifeWatch ERIC needs to boost its construction and to engage users in developing their research activities into the Virtual Research Environments of the e-Science Infrastructures, by clearly demonstrating and documenting the added value these new technologies bring to address challenging hot topics.

LifeWatch ERIC has started an Internal Joint Initiative with the exact aim of addressing these needs and reinforcing the positioning of **LifeWatch ERIC** within the biodiversity and ecosystem scientific community. As a subject for the demonstration case, LifeWatch ERIC has selected non-indigenous and invasive species (NIS).

If you are interested in the IJI and want to join us on the validation cases, just drop us an e-mail service.centre[at]lifewatch.eu.

Validation cases

Nine validation cases have been agreed on by the scientific community representatives focusing on various aspects of NIS invasion, stemming from the desire of the infrastructure to use the most participative interdisciplinary approach to investigate this wide topic.

As an immediate result of this collaboration, scientists and ICT experts jointly outlined a conceptual paper and designed a workflow that will serve as a living timeline along which different e-tools have to be developed to help address relevant issues related to NIS for scientists, managers, decision-makers and society.

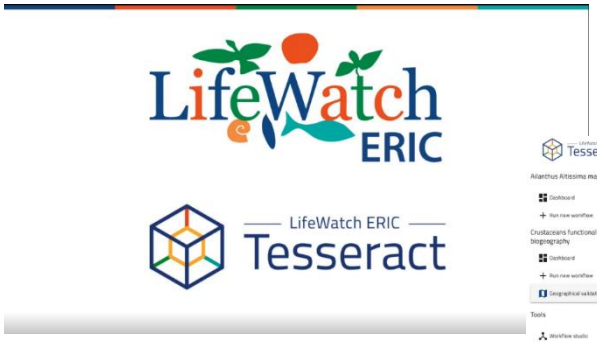
1. Combining Modeling and remote sensing techniques to monitor and control the spread of invasive species: the case of *Ailanthus altissima*
2. European ARMS programme: long-term monitoring of hard-bottom communities for invasive marine species
3. Risk assessment of NIS introduction and establishment, habitat vulnerability to NIS and estimation of the impact on Biotopes
4. Functional biogeography of invasive species: the case of two widely-distributed omnivorous crustaceans
5. Successive invasions in the Mediterranean Sea: How the history of *Caulerpa taxifolia* can inform on the new invaders *Caulerpa racemosa* and *Rugulopteryx okamurae*

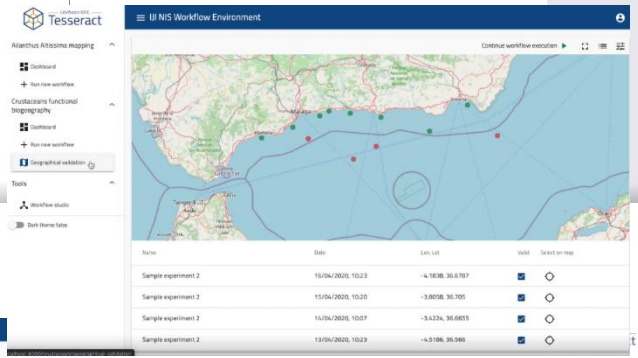
Internal Joint Initiative

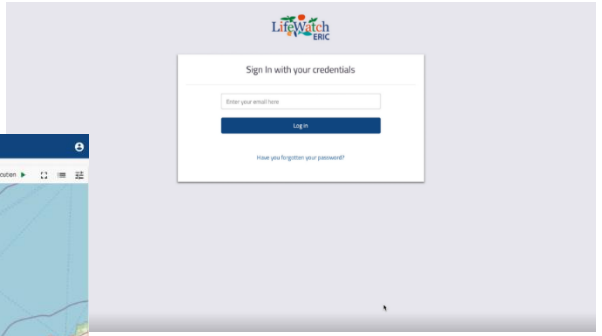
- **Rationale & Objectives**
- **Framework & Knowledge Map**
- **Validation Cases**
- **Dahlem Type Workshops**
  - **Rome, 02-06/12/2019**
  - **Seville, 14-18/10/2019**
- **Collaborative Space**

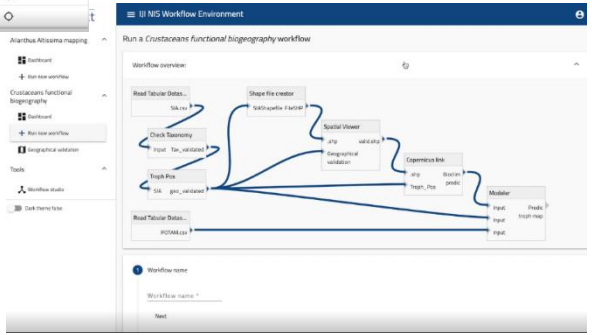
Link to workshop

_What we provide | VREs Non Indigenous Invasive Species









LifeWatch ERIC_AgroEcology Virtual Lab

EUROPE

ALL-Ready: The European Agroecology Living Lab and Research Infrastructure Network: Preparation Phase

N°	Participant organisation name (Acronym)	Country
1	Institut national de recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE)	France
2	Aarhus Universitet (AU)	Denmark
3	Ökológiai Mezőgazdasági Kutatóintézet Közhasznú Nonprofit Kft (OMKI)	Hungary
4	Johann Heinrich Von Thuenen-Institut, Bundesforschungsinstitut Fuer Laendliche Raeume, Wald Und Fischerei (TI)	Germany
5	European Network Of Living Labs Ivzw (ENoLL)	Belgium
6	Biosense Institute - Research And Development Institute For Information Technologies In Biosystems (BIOS)	Serbia
7	Fibl Europe - Forschungsinstitutfur Biologischen Landbau In Europa (FiBL Europe)	Belgium
8	Ecologic Institut gemeinnützige Gmbh (Ecologic)	Germany
9	European Landowners Organization (ELO)	Belgium
10	Agriculture And Agri-Food Canada (AAFC)	Canada
11	Eigen Vermogen Van Het Instituut Voor Landbouw- En Visserijonderzoek (EVILVO)	Belgium
12	E-Science European Infrastructure For Biodiversity And Ecosystem Research (LifeWatch ERIC)	Spain
13	The University of Sheffield (ISF)	United Kingdom

https://www.all-ready-project.eu/

LAC

EU-CELAC ResInfra: Towards a new EU-CELAC partnership in Research Infrastructure

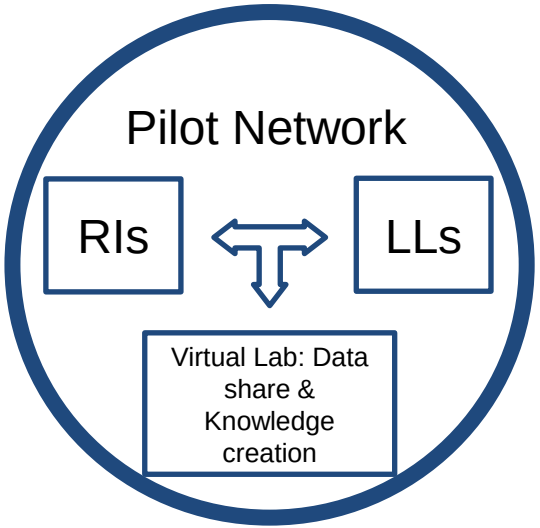
No	Name	Short name	Country
1	MINISTERIO DE CIENCIA, INNOVACION Y UNIVERSIDADES	MICINN	Spain
2	MINISTERIO DE EDUCACION Y CULTURA	MEC	Uruguay
3	DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV	DLR	Germany
4	AGENCIA ESTATAL DE INVESTIGACION	AEI	Spain
5	FUNDACAO PARA A CIENCIA E A TECNOLOGIA	FCT	Portugal
6	SECRETARIA DE GOBIERNO DE CIENCIA, TECNOLOGÍA E INNOVACIÓN PRODUCTIVA	SGCTEIP	Argentina
7	CONSIGLIO NAZIONALE DELLE RICERCHE	CNR	Italy
8	CONSEJO NACIONAL DE CIENCIA Y TECNOLOGIA	CONACYT	Mexico
9	Teknologian tutkimuskeskus VTT Oy	VTT	Finland
10	COMISION NACIONAL DE INVESTIGACION CIENTIFICA Y TECNOLOGICA	CONICYT	Chile
11	SOCIEDADE PORTUGUESA DE INOVACAO CONSULTADORIA EMPRESARIAL E FOMENTO DA INOVACAO SA	SPI	Portugal
12	CONSELHO NACIONAL DE DESENVOLVIMENTO CIENTIFICO E TECNOLOGICO	CNPQ	Brazil
13	Unitatea Executiva pentru Finantarea Invatamantului Superior, a Cercetarii, Dezvoltarii si Inovarii	UEFISCDI	Romania
14	Ministerio de Ciencia y Tecnologia de Costa Rica	MICITT	Costa Rica
15	DEPARTAMENTO ADMINISTRATIVO DE CIENCIA, TECNOLOGIA E INNOVACION - COLCIENCIAS	COLCIENCIAS	Colombia
16	INSTRUCT-ERIC	INSTRUCT-ERIC	United Kingdom
17	E-SCIENCE EUROPEAN INFRASTRUCTURE FOR BIODIVERSITY AND ECOSYSTEM RESEARCH	LIFEWATCH	Spain
18	CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT	CIEMAT	Spain

https://resinfra-eulac.eu/

_AgroEcology Virtual Lab | ALL-Ready

Taking into consideration that:

- **RIs and LLs are instruments** contributing to amplifying the **transition to agroecology in Europe**.
- ALL-Ready will map and analysis **what works, where and why**.
- **Pilot network** will be the **basis for sharing of knowledge and data** as well as capacity building.



Agroecology Virtual Lab will facilitate the access to agroecological-related information in a safe, secured and trustworthy system

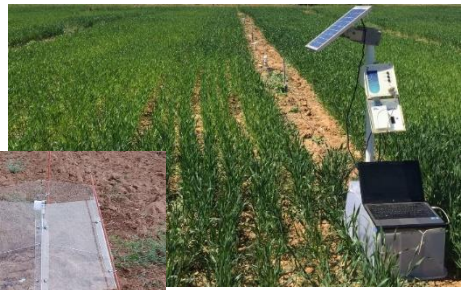
LifeWatch ERIC_AgroEcology Virtual Lab

Strategic partner INIA-CSIC

The National Centre for Agricultural and Food Research and Technology (INIA) of Spanish Research Council (CSIC) has a group especially focused in the research on **the environmental impacts of sustainable agricultural practices** at the farm and landscape levels.

Contributing to build a Virtual Lab to:

- Analyze the environmental impacts of **different territorial planning** and **agri-food scenarios** at different geographical scales for estimating their individual benefits and associated effects (both positive and negative).
- Ascertain **synergies and trade-offs between different agronomic practices** devoted to the adaptation and mitigation of **climate change**.
- Seeking for sustainable technological approaches to **close the flow of nutrients** in a given territory, facilitating agroecological transitions.



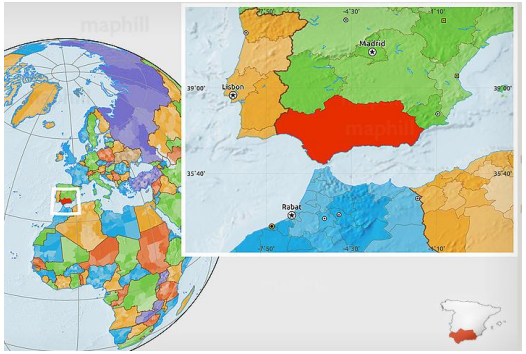
LifeWatch ERIC_AgroEcology Virtual Lab

Strategic partner AGAPA

Agencia de Gestión Agraria y Pesquera de Andalucía, AGAPA, (Agency for the management of Agriculture and Fisheries of Andalusia) is a public agency that falls under the regional Government of Andalusia (Spain).

It bases its activity on the **development of policies** related to the **agricultural, livestock, fishing and rural development sectors** which are of enormous importance both in EU policies and with regards to cooperation with third parties.

Currently the Agency is involved in a project with **LifeWatch ERIC** related to the Agriculture Digitalisation, in order to measure the impact of agriculture activities on biodiversity and the ecosystems services.



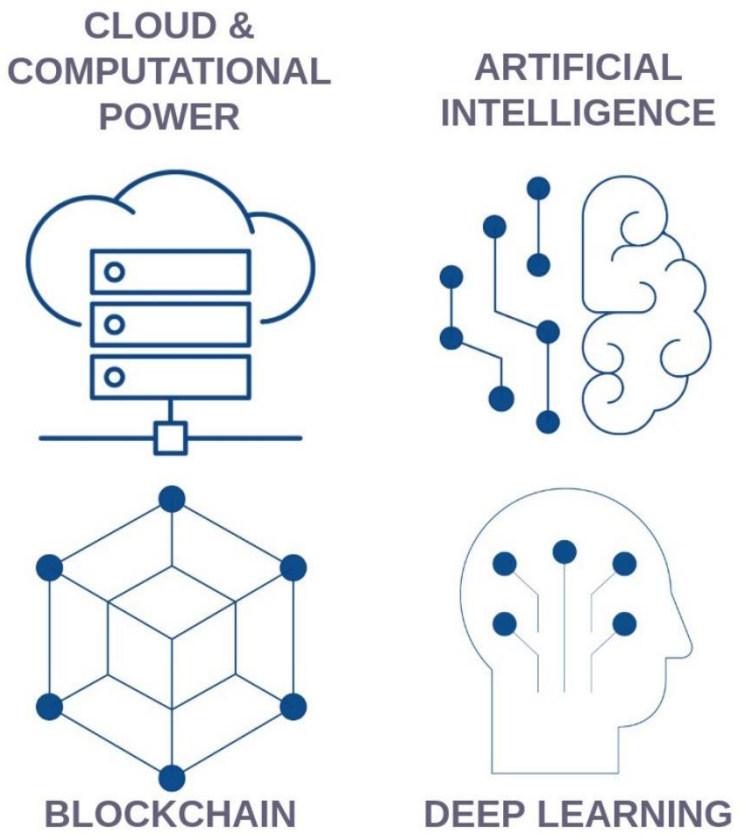
_AgroEcology Virtual Lab | ALL-Ready

Added-value:

- First, a tool for **sharing of knowledge** and **data** thereby strengthening the agroecology R&I ecosystem in Europe which is a prerequisite for upscaling across Europe.
- **Knowledge management** and **knowledge hub** allowing to the final user to identify the source and link with the specific context where the agroecological knowledge has been developed.
- Legitimate system for the **accountability of the environmental and socioeconomic benefits** of agroecology practices, **using LifeBlock**.
- Knowledge based decision support system for **policy-makers** (e.g. for incentivization systems).
- Knowledge based decision support system for **funders**.
- Potential to help **farmers** and farmer associations
- Possibility to have services for **citizen science.**

LifeWatch ERIC_What we provide | Technology layer

- Making data, services and VRE accessible and usable in a FAIR optics;
- Engaging, tracking, accounting and securing biodiversity and ecosystem resources & services provision, through the LifeWatch ERIC blockchain platform;
- Providing cloud & computational power, and storage capacity to create models for future scenarios;
- Supporting smart ecosystem management in the context of climate change, also thanks to the application of innovative technologies like deep learning and artificial intelligence.



_What we provide | Training & Citizen science

Empower citizens and youth to engage with science and contribute to future developments and their own well-being:

- Master and PhD programmes;
- Summer schools;
- Workshops and webinars;
- Training portals and programmes on key scientific issues;
- Serious (scientific) games;
- Educational Comics.

Our team

LifeWatch ERIC Scientific & ICT Working Groups

- Our working methodology coordinates 39 scientists and 36 ICT experts (among others)
- Continuous improvement guarantees the success of incoming challenges (i.e., Tesseract VRE)

LifeWatch ERIC

LifeWatch ERIC Tesseract

LifeBlock

www.lifewatch.eu

Thanks!

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